

How to Use this Manual

This manual provides detailed instructions on installation and maintenance of Falk CT-Series gear drive. Use the table of contents below to locate required information.

CAREFULLY FOLLOW THE INSTRUCTIONS IN THIS MANUAL FOR OPTIMUM PERFORMANCE AND TROUBLE-FREE SERVICE OF YOUR FALK GEAR DRIVE.

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1. INTRODUCTION

Credit for long service and dependable operation of a gear drive is often given to the engineers who designed it, or the craftsmen who constructed it, or the sales engineer who recommended the type and size. Ultimate credit belongs to the mechanic on the job who worked to make the foundation rigid and level, who accurately aligned the shafts and carefully installed the accessories, and who made sure that the drive received regular lubrication. The details of this important job are the subject of this manual.

NAMEPLATE — Operate Falk gear drives only at power, speed and ratio shown on the nameplate. Before changing any one of these, submit complete nameplate data and new application conditions to Factory for correct oil level, parts, and application approval.

LUBRICATION — Lubrication of gears and bearings is entirely self-contained by splash. In general oil grade to be used is ISO-VG 320. Oil thrower on input shaft produces positive splash which in turn, ensures continuous circulation of oil to top bearings through channels.

WARNING: Consult applicable local and national safety codes for proper guarding of rotating members. Lock out power source and remove all external loads from drive before servicing drive or accessories.

WARRANTY — Rexnord Industries, LLC (the "Company") warrants that Falk V-Class™ gear drives (I) conform to Company's published specifications, and (II) are free from defects of material for two years from the date of shipment.

Company does not warrant any non-Company branded products or components (manufacturer's warranty applies) or any defects in damage to, or failure of products caused by: (I) dynamic vibrations imposed by the drive system in which such products are installed unless the nature of such vibrations has been defined and accepted in writing by Company as a condition of operation; (II) failure to provide suitable installation environment; (III) use for purposes other than those for which designed, or other abuse or misuse; (IV) unauthorized attachments, modifications or disassembly, or (V) mishandling during shipping.

QUALIFIED PERSONNEL — The product or system to which these instructions relate may be handled only

by persons qualified for the work concerned and in accordance with the instructions relating to the work concerned, particularly the safety and warning notes contained in those instructions. Qualified personnel must be specially trained and have the experience necessary to recognize risks associated with these products or systems and to avoid possible hazards.

2. GENERAL NOTES AND SAFETY INSTRUCTIONS

The proper working of a gear unit not only depends on the good design, the use of good material and good workmanship but also on careful installation, proper lubrication and proper working conditions. Hence, it is of utmost importance to see that the installation of the gear box is one according to the instructions given in this manual to ensure proper working of the gear box and to ensure a long and trouble free service.

This manual should be kept with the person in-charge who handles the installation & operation. They should thoroughly study and understand the instructions given in this manual. Precisely following of this manual will give trouble free working of the Gear unit. In the interest of future development, we reserve the right to introduce modifications to the individual subassemblies & accessories, which, while retaining the essential features, can be regarded as desirable to increase their efficiency, reliability and safety.

2.1 INSTRUCTIONS FOR LONG STORAGE OF GEAR UNITS

Following instructions for the long time storage of the gear units is of extreme importance as violation of which can lead to the premature failure.

Long time storage of a gear unit can be due to:

2.1.1 Unit is not in action, however, installed in the place

2.1.2 Unit is kept in store and waiting for its use.

OR

2.1.3 The unit is installed but not in action:

When the gear unit is installed in the system but is out of action, a quantity of oil must be added to exceed maximum level by 30 mm to 50 mm. Special attentions should be given to the condition of the oil. Old oil, which may form a deposit or be acidic, should be removed. The gears should be turned slowly by hand at intervals, in order to ensure the oil is distributed over all parts in contact. Wherever grease nipples are provided, add grease through grease nipples.

2.1.4 The unit is to be stored for a long time:

When the unit is to be stored for a long time, it should be run for 5 minutes after filling with rust protective oil. The level of the oil should be about 30 mm to 50 mm higher than the normal oil level. All the parts having been thoroughly coated with oil, the protective fluid can be drained and kept for other similar operations.

The inspection covers and the drain plugs should be completely sealed. On starting up the speed reducer, no special precaution need be taken

other than filling the oil bath according to the recommended quantity and quality of lubricating oil. To prevent corrosion during storage, Silica Gel bags should be kept in the vicinity of the gear unit. NOT INSIDE GEAR CASE. Silica Gel should be periodically checked for moisture absorption and be changed from time to time.

2.2 GENERAL REMARKS

The inner parts of new units leaving our Works are sprayed with a rust protective oil which keeps them free from rust for 6 months, provided they are sheltered from atmospheric elements, preferably in a closed ventilated place. When putting into operation, proceed as per instructions of this manual. When storing the units leave them in the cases through which they have been forwarded. Do not put them near vibrating machines, such as reciprocating engines, compressors and pumps in order to avoid wear of bearings by vibration. For a gear box that has to be stored for more than 6 months the gear should be treated as per procedure laid down in 2.1.4 i.e. to run the gear with rust protective for 5 minutes.

2.3 OBLIGATIONS OF THE USER

The operator must ensure that everyone carrying out work on the gear unit has read and understood these instructions and is adhering to them in every point in order to:

Avoid injury or damage,

Ensure the safety and reliability of the unit,

Avoid disruptions and environmental damage through incorrect use

During transport, assembly, installation, dismantling, operation and maintenance of the unit, the relevant safety and environmental regulations must be complied with at all times.

The gear unit may only be operated, maintained and/or repaired by persons qualified for the work concerned (see "Qualified personnel" on page 1 of this manual).

The outside of the gear unit must not be cleaned with high-pressure cleaning equipment

A potential equalization in accordance with the applying regulations and directives must be carried out! If no threaded holes for earth connection are available on the gear unit, other appropriate measures must be taken. This work must always be done by specialist electricians.

Removed safety equipment must be re-installed prior to starting up.

Notices attached to the gear unit, e.g. rating plate, direction arrows etc., must always be observed. They must be kept free from dirt and paint at all times. Missing plates must be replaced.

Screws which have been damaged during assembly or disassembly work must be replaced with new ones of the same strength class and type.

2.4 ENVIRONMENTAL PROTECTION

Dispose of any packing material in accordance with regulations or separate it for recycling.

When changing oil, the used oil must be collected in suitable containers. Any pools of oil which may have collected should be removed at once with an oil-binding agent.

Preservative agents should be stored separately from used oil.

Used oil, preservative agents, oil-binding agents and oil-soaked cloths must be disposed of in accordance with environmental legislation.

Disposal of the gear unit after its useful life:

Drain all the operating oil, preservative agent and/or cooling agent from the gear unit and dispose of in accordance with regulations.

Depending on national regulations, gear-unit components and/or add-on parts may have to be disposed of or sent for recycling separately.

3. TRANSPORT AND STORAGE

The gear unit is delivered in the fully assembled condition. Additional items are delivered separately packaged, if applicable. Different forms of packaging may be used, depending on the size of the unit and method of transport.

Transport of the complete gear unit should be undertaken by using wire ropes / cable strips of required strength.

While lifting the complete gear unit, please do not use the shaft and lugs provided on the casing. Use the 4 lifting lugs provided on top part of the gear cases. (See Fig. 1a. & 1b).

Lift the gear unit which is fitted with lubrication piping carefully in such a way as to avoid any damage to the piping system.

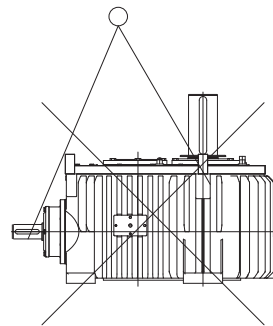


Fig. 1a. Incorrect way of lifting gearbox

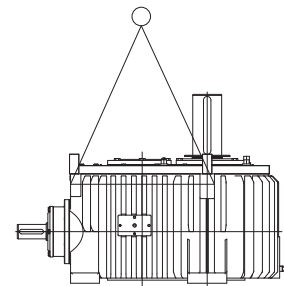


Fig. 1b. Correct way of lifting gearbox

3.1 STORING THE GEAR UNIT

The gear unit must be stored in a sheltered place in the position of the original packaging or in the position of use, placed on a vibration-free, dry base, and covered over.

Provision for special environmental conditions during transport (e.g. transport by ship) and storage (climate, termites, etc.) must be contractually agreed.

3.2 DELIVERY CONDITIONS

All gear units are manufactured with highest quality control and keeping the exact specifications in mind. The gears are carefully inspected at various stages and run on the test bed. After all the quality control tests are made, the gear units sealed and certified for dispatch. The seal on the gear should not be removed without our prior consent. If the same is removed without our consent, will automatically relieve us from our guarantee.

Gear units are packed in wooden cases having suitable battens to facilitate handling. Casings are marked with the symbol showing the position of gear unit, inside the casing.

The gear units are supplied without filling up of oil. Recommended oil has to be filled in before commissioning the unit.

Wherever grease lubrication points are provided, the grease filling is done at the manufacturing facility.

Grease seals during oil change intervals. Depending on the degree of contamination, it may be necessary to purge contaminated grease from seals more often (at least every 3 to 6 months). Purge grease from seals by first cleaning grease fitting and then slowly pump fresh grease, **WITH A HAND GREASE GUN**, through the seal cavity until fresh grease flows out along the shaft. Wipe off purged grease. Cooling accessories can be removed to access grease purge without removing shaft connection on motor.

3.3 PRESERVATION

3.3.1 General — All bright parts such as shaft ends are given a coat of anti-rust compound 'Suprabha make VCI 602 Rustojel'. Anti-rust compound is easily removable by applying mineral turpentine oil or nitro-thinners or suitable solvents. Please do not use files or sand papers for removal of anti-rust coating.

If the gear unit is required to be stored for a long time before putting into operation, then please follow the instructions given earlier (see chapter 3.3.4 & 3.3.5) in this manual to prevent premature damage to the gear unit.

Interior preservation: VCI-412 or equivalent (see chap. 3.3.2)

Exterior preservation: VCI-602 or equivalent (see chap. 3.3.2)

3.3.2 Interior preservation — The internal rotating elements of all gear drives are sprayed with Suprabha's VCI-412 before they leave the plant. This internal spray coating is good for approximately 6 months indoor storage. So VCI-412 is used inside gearbox. The VCI-412 is to be sprayed by opening inspection window. Rotate input shaft in one direction while spraying VCI-412 to apply on all internals rotating parts & all accessible areas. Also rotate input shaft in reverse direction to apply VCI-412 on all internals & bearings. The anticorrosion oil VCI-412 will fully dissolve during putting into operation provided the operating oil in accordance with the lubricants chart (see chapter 6) is used.

3.3.3 Exterior preservation — The exterior preservation of blank parts is carried out independently from the interior preservation. Outside surfaces of gearbox are sprayed with Suprabha's VCI-602. This VCI-602 is a ready-to-use petroleum jelly. Upon application, a tenacious film is created on surface. The vapours released by VCI (Vapour Corrosion Inhibition) create a protective vapour barrier that keeps corrosion promoting agents like moisture and oxygen away. This outside spray coating is good for approximately 18-24 months indoor and 10-12 months outdoor.

3.3.4 Period of corrosion protection — The gear must be stored inside a room spanned by a roof. The ambient temperature in stock must not exceed 50°C. Furthermore, the storage conditions must be such as to prevent foreign bodies (water, dust) entering the gear.

If the gear is stored for a period exceeding one year upon supply ex-works, interior and exterior preservation must be checked every 5-6 months and renewed. If the gear is stored, however, in an outdoor area under cover or a tropical country, preservation must be checked every 6 months and renewed.

For renewal of preservation, the instructions of the chapter 3.3.5 must be adhered to.

3.3.5 Renewal of gear unit preservation — A renewal of the preservation is required, if the following conditions occur: The delays set forth in chapter 3.3.4 have expired or the relevant storage instructions are not respected.

3.3.6 Renewal of interior preservation — As a first step, remove all condensed water that might have entered the gear. Apply VCI-412 by spray using inspection windows with internals rotating manually in both directions. Ensure that the preservation is uniformly applied.

3.3.7 Renewal of exterior preservation — Remove the existing preservative from all polished parts, using a petroleum-based solvent. Then apply an even layer of the new compound on all polished parts. If possible, use the same preservative. Other compounds may only be used if equivalent to and compatible with the original one.

4. INSTALLATION

4.1 FOUNDATION

The foundation should be designed in such a way that no resonance vibrations are created and that no vibrations are transmitted from adjacent foundations. The structure on which the unit is to be mounted must be rigid. It must be designed according to the weight and torque, taking into account the forces acting on the gear unit.

Careful alignment with the units on the in-and output sides must be ensured. Any elastic deformation through operating forces must be taken into consideration.

Fastening bolts or nuts must be tightened to the correct torque.

If external forces are acting upon the gear unit, it is advisable to prevent the unit from displacement by means of lateral stops.

For dimensions, space requirement, arrangement of supply connections (e.g. with separate oil-cooling units), refer to the drawings in the gear-unit documentation.

4.2 FOUNDATION GENERAL

The foundation frame must be horizontal and plain. The gear unit must not be excessively stressed when tensioning the fastening bolts.

The levelness of the gear-unit standing surface is especially important, as the contact pattern of the teeth and the load of the bearings depend on it and the service life of the gear unit is affected by it. All points on the gear-unit standing surface must lie between two imaginary parallel planes 0.1 mm per 1 m apart.

Clean the undersurface of the gear-unit base and the foundation frame.

Using suitable lifting gear, place the gear unit on the foundation frame.

Use only the eyes provided to attach lifting equipment to the unit. Do not use the front threads at the shaft ends to attach slinging and lifting gear for transport.

Tighten the foundation bolts to the specified torque if necessary, use stops to prevent displacement.

Align the gear unit exactly with the input and output units.

Record alignment dimensions.

4.2.1 Foundation — The gear unit must be mounted on leveled foundation using the correct size and type of foundation bolts. The foundation must have sufficient load carrying capacity. The foundation must be cast in the proportion like M150/M200, with suitable reinforcement. A civil engineer, expert in foundation technology should be consulted for checking suitability of foundation.

The gear unit can be mounted in an inclined position, refer Fig. 2, only if this requirement is specified while ordering out the gear unit.

Where the gear units are used in outdoor installations, they should be protected from direct sun, wind and rain. During operation, the free airflow along with the surface of unit should not be obstructed.

Where the lower parts of the gear casing are provided with an integrally cast and machined levelling seat, while aligning the gear unit with the prime mover and driven equipment, check the horizontal level by means of levelling seats. Correct leveling ensures proper lubrication of bearings.

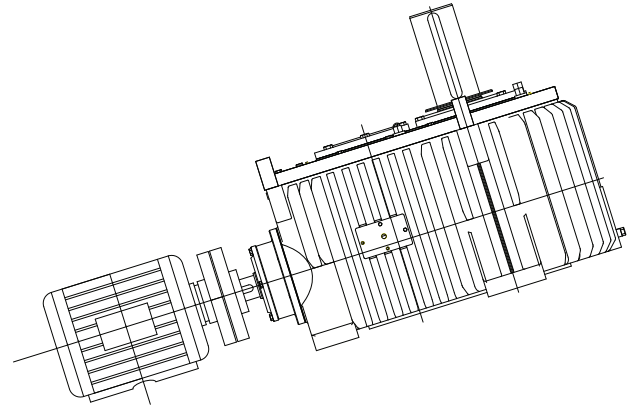


Fig. 2

4.3 INSTALLATION

Quiet running and long service life of the gear unit largely depend upon correct installation. Permissible deviation from the dimension "a" can be checked from the data provided by the coupling manufacturer (Fig. 3).

Installation should be carried out in such a way that inspection cover and drain plugs are readily accessible. Clients are requested to make provision for suitable draining pan below the oil outlet.

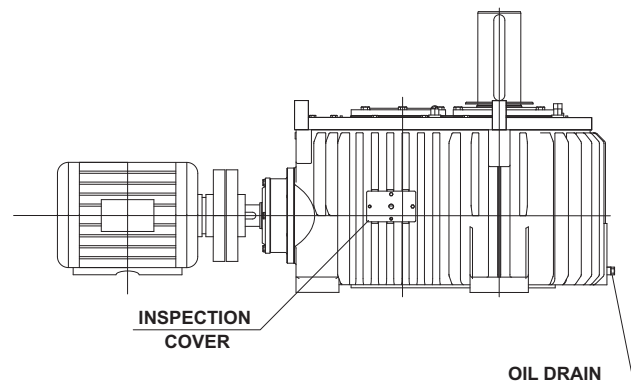
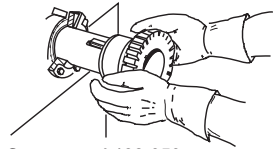


Fig. 3

5. SHAFT CONNECTIONS

WARNING: Provide suitable guards in accordance with local and national standards.

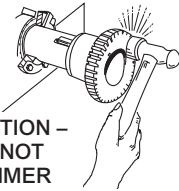
COUPLING CONNECTIONS — The performance and life of any coupling depends largely upon how well the coupling is installed and serviced. Refer to the coupling manufacturer's manual for specific instructions.



See manual 138-050 for proper location.

CORRECT METHOD

Heat interference fitted hubs, pinions, sprockets or pulleys to a maximum of 135°C (275°F) and slide onto gear drive shaft.



– CAUTION –
DO NOT
HAMMER

INCORRECT METHOD

DO NOT drive coupling hub, pinion, sprocket or pulley onto the shaft. An endwise blow on the shaft/coupling may damage gears and bearings.

FALK COUPLINGS — (except fluid type) Detailed installation manuals are available from Factory, your local Rexnord representative or distributor—just provide size and type designations stamped on the coupling. For lubricant requirements and a list of typical lubricants meeting Rexnord specifications, refer to appropriate coupling service manual.

6. LUBRICATION

Too much oil causes heating of the gear unit and too little oil causes wear. The oil level in tank must be checked from time to time and maintained strictly as per the given oil level mark in tank. The bearings are generally lubricated with the oil used for gears.

The class of lubricants is enclosed herewith. The class of lubricants states which oil or grease should be used under specific operating conditions.

In case of extreme temperature fluctuations from 0 to -30°C, special type of oil is necessary. Client should obtain the exact operating temperature to determine the correct lubricant.

In case of low ambient temperature, oil heating is necessary and where the ambient temperature is too high, oil cooling has to be provided. Hence, client should inform us the ambient temperature at the time of placing order.

7. PREPARATIONS FOR TEST RUN

7.1 REMOVAL OF PRESERVATIVE AGENT

Before re-starting the gear unit the screw plug (if fitted) must be replaced with the breather screw or the air filter. Remove adhesive tape from the labyrinths (if present) in case of Tacolab seals only.

The location of the oil-draining points is marked by an appropriate symbol in the dimensioned drawing in the gear-unit documentation.

Oil-draining point:



Place suitable containers under the oil-draining points.

Unscrew screw plug and open oil-drain cock.

Remove remaining preservative agent and/or running-in oil from the gear unit using a suitable container.

Dispose of remaining preservative agent and/or running-in oil in accordance with regulations

Close the oil-drain cock.

Screw in screw plugs into the oil-drain cocks again.

A detailed view of the gear unit can be obtained from the drawings in the gear-unit documentation.

7.2 FILLING WITH LUBRICANT

Undo and remove fastening screws on the inspection and/or assembly cover.

Remove cover with seal from housing (seal will be used again).

Visual check of the interior parts for corrosion.

Using a filter, fill the gear unit with fresh oil up to the upper mark on the oil-sight glass.

DRIVES WITH OIL PUMPS — Fill drive to level marked on the dipstick. Before starting the gear drive, rotate the input shaft to check for obstructions. For drives equipped with electric motor-driven oil pumps, run the oil pump for 2 to 5 minutes with the gear drive not running. For all drives, start the gear drive and allow it to run without load for several minutes to fill system components. Verify that the pump is circulating oil properly then shut down drive. Recheck oil level and add oil if necessary. When everything is satisfactory, the drive is ready for operation.

7.3 OIL-LEVEL MONITORING SYSTEM

This monitoring is designed as a standstill monitoring (gear unit stop) and checks the level of the oil visually before the unit is started up.

Lubricants Chart

DIN (ISO)	ISO VG Class	Mobil	Shell	Total	Castrol	MAK Lubricants	Servo	HP
CLP	VG 150	Castrol Alpha SP 150	Bharath Amocam Oil 150	Servo Mesh SP 150	Parthan EP 150
CLP-HP	VG 150	Mobilgear SHC XMP150	...	Carter SH 150	Optigear Synthetic X 150	...	Servosyngear 150	...
CLP	VG 220	Mobilgear XMP220	Shell Omala F220	Carter EP 220	Castrol Alpha SP 150	Bharath Amocam Oil 220	Servo Mesh SP 220	Parthan EP 220
CLP-HP	VG 220	Mobilgear SHC XMP220	Shell Omala Oil HD 220	Carter SH 220	Optigear Synthetic A 150	...	Servosvneear 220	...
CLP	VG 320	Mobilgear XMP320	Shell Omala F320	Carter EP 320	Castrol Alpha SP 320	Bharath Amocam Oil 220	Servo Mesh SP 320	Parthan EP 320
CLP-HP	VG 320	Mobilgear SHC XMP320 Mobil SHC 632	Shell Omala Oil HD 320	Carter SH 320	Optigear Synthetic A 320	...	Servosyngear 320	...
CLP	VG 460	Mobilgear XMP460	Shell Omala F460	Carter EP 460	Castrol Alpha SP 460	Bharath Amocam Oil 460	Servo Mesh SP 460	Parthan EP 460
CLP-HP	VG 460	Mobilgear SHC XMP460 Mobil SHC 634	Shell Omala Oil HD 460	Carter SH 460	Optigear Synthetic A 460	...	Servosyngear 460	...

8. MAINTENANCE

8.1 OIL CHANGE

The first oil change after about 200 working hours.

Subsequent oil changes must be made after every 1500 to 5000 operating hours, depending on working conditions. The oil change intervals should, however, not exceed 18 months.

If possible, the oil should be drained warm.

Where the gear unit has to be stored for a long time, consult us in advance for advice and to enable us to give a special treatment before dispatch, for storing the gear unit for a longer time. As an alternative to the oil-change intervals indicated in Table 1 (see item 8.5) it is possible to have the oil sample tested at regular intervals by the Technical Service of the relevant oil company and to have it released for further use.

If re-usability has been confirmed, no oil change will be necessary.

Drain the oil while the gear unit is still warm, i.e. immediately after shutting down the machinery. When changing the oil, always re-fill the gear unit with the same type of oil. Never mix different types of oil and/or oils made by different manufacturers. Polyglycol-based synthetic oils in particular must not be mixed with PAO-based synthetic oils or mineral oils. If changing to a different grade or make of oil, the gear unit must, if necessary, be flushed out with the new oil grade. Flushing is not necessary, if the new service oil is fully compatible with the old service oil in all respects. Compatibility must be confirmed by the oil supplier. If there is a change to another oil grade or make, Rexnord recommends flushing out the gear unit with the new grade of service oil.

When changing the oil, the housing and the oil-supply system, if available, must be flushed with oil to remove sludge, metal particles and oil residue. Use the same type of oil as is used for normal operation.

High-viscosity oils must be heated beforehand using suitable means. Ensure that all residues have been removed before filling with fresh oil.

For oil renewal period refer to Table 1 based on the operating temperature.

Table 1 — Oil Renewal Period

Unit operating temperature (°C)	Renewal period
	Mineral oil ISO VG Class
Up to 75°C	4320 hrs or 6 months
75°C to 85°C	3000 hrs or 6 months
85°C to 95°C	2500 hrs or 3 months
95°C to 105°C	2000 hrs or 3 months

Place a suitable container under the oil-draining point of the gear-unit housing.

Unscrew the breather plug including reducing screw at the housing top.

Unscrew the screw plug or the open oil-drain cock and drain the oil into the collecting container.

Drain the oil from the oil-supply system (see operating instructions to the oil-supply system).

There is a danger of scalding from the hot oil emerging from the housing. Wear safety gloves and safety glasses! Remove any oil spillage immediately with an oil-binding agent.

Check the condition of the sealing ring (the sealing ring is vulcanized onto the oil-drain plug). If necessary, use a new oil-drain plug.

Screw in the screw plug again and shut the oil-drain cock.

Clean the oil filter in the oil-cooling system (see operating instructions of the oil-supply system).

Clean the breather plug (see item 8.2).

Screw in the breather plug including reducing screw.

8.2 CLEAN THE BREATHER PLUG

If a layer of dust has built up, the breather plug must be cleaned, whether or not the minimum period of 3 months has expired.

Unscrew the breather plug including the reducing screw.

Clean the breather plug using benzene or a similar cleanser.

Dry the breather plug.

8.3 TOP UP OIL

The instructions in item 7.1 must be observed!

Always top up with the same type of oil as already used in the unit (see also item 8.1).

8.4 CHECK TIGHTNESS OF SCREW CORRECTIONS

The instructions in item 8.1 must be observed.

Close the stop valves in the coolant in- and outflow pipes (for gear units with water oil-cooling system).

Check tightness of all screw connections.

8.5 GENERAL NOTES ON MAINTENANCE

All maintenance and repair work must be done with care and by duly trained and qualified personnel only.

Switch the gear unit and add-on components off.

Secure the drive unit to prevent it from being started up unintentionally. Attach a warning notice to the start switch!

The periods indicated in Table 2 depend on the conditions under which the gear unit is operated.

Only average periods can therefore be stated here. These refer to:

- A daily operating time of 24 h
- An input-drive speed of 1500 1/min
- Maximum oil temperature of 90°C (applies to mineral oil)
- 100°C (applies to synthetic oil)

The operator must ensure that the intervals stated in Table 2 are adhered to.

Under different operating conditions the periods indicated above must be adjusted accordingly.

8.6 GENERAL OIL-SERVICE LIVES

According to the oil manufacturers, the following are the expected periods during which the oils can be used without undergoing any significant change in quality. They are calculated on the basis of an average oil temperature of 80°C:

- For mineral oils, biologically degradable oils and physiologically safe (synthetic esters) oils 2 years or 10,000 operating hours (does not apply to natural esters, such as rapeseed oils).
- For poly- α -olefins and polyglycols, 4 years or 20,000 operating hours.

The actual service lives may differ. The general rule is that an increase in temperature of 10°C will halve the service life and temperature decrease of 10°C will approximately double the service life.

Table 2 — Maintenance

Measure	Period
Check the oil temperature	Daily
Check for unusual gear-unit noise	Daily
Check the oil level	Monthly
Check the gear unit for leaks	Monthly
Test the water content of the oil	After approx. 500 operating hours, at least once per year
Perform the first oil change	Approx. 200 operating hours after start-up
Perform oil changes	After every 1500 to 5000 operating hours
Clean air filter	Every 3 months
Clean the gear unit	Depending on requirements, at least every 2 years
Check tightness of screw connections	After first oil change, then every 2 years
Inspection of the gear unit	Approx. every 2 years

8.7 DESCRIPTION OF MAINTENANCE

8.7.1 TEST WATER CONTENT OF OIL — More information about examining the oil for water content or conducting oil analyses is obtainable from your lubricant manufacturer or our customer service. For reference purposes, a fresh sample of the operating lubricating oil used must be sent with the used oil sample to the analyzing institute for analysis. The oil sample must be taken downstream of the filter of the oil-supply system while the gear unit is running. A suitable connection point is normally located upstream of the gear unit input (e.g. oil-drain cock in the pressure line). A special sample container should be filled with the specified quantity of oil. If there is no such sample container available, at least one litre of oil must be put in a clean, transport worthy, sealable vessel.

8.7.2 OIL SUPPLY SYSTEM — Be sure to observe the operating instructions of the oil-supply system for operation and maintenance.